1. §7.7: 1, 5, 7, 9, 11, 21, 25. For each problem you must compute the integral according to Type 1 Integration Instructions. Do not use a calculator or table of integrals to find antiderivatives.

2. Compute each of the following integrals. Follow Type 1 Integration Instructions.

(a) \( \int_{2}^{\infty} \frac{dx}{x^2} \)

(b) \( \int_{0.5}^{\infty} \frac{dx}{x^3} \)

(c) \( \int_{10}^{\infty} \frac{dx}{x} \)

(d) \( \int_{2}^{\infty} \frac{dx}{x^{1/2}} \)

(e) \( \int_{0}^{2} \frac{dx}{x^{3/2}} \)

(f) \( \int_{1}^{\infty} \frac{dx}{e^x} \)

(g) \( \int_{3}^{\infty} \frac{dx}{x \ln x} \)

(h) \( \int_{e}^{\infty} \frac{dx}{x(\ln x)^k} \), where \( k \) is a constant bigger than 2.

Hints and Answers

2: (a) \( \frac{1}{2} \), (b) 2, (c) Divergent, (d) Divergent, (e) \( 2\sqrt{2} \), (f) \( e^{-1} \), (g) Divergent, (h) \( \frac{1}{k - 1} \)